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### (54) MANUFACTURE OF QUARTZ GLASS

#### (57)Abstract:

PURPOSE: To obtain quartz glass free from cracking and easy to dehydrate by cooling and freezing silicic acid gel formed by the hydrolysis of a silicon compound after which the gel is vacuum dried and converted into transparent glass by heat dehydration.

CONSTITUTION: A hydrolyzable silicon compound is hydrolyzed in a liq. phase to form silicic acid gel. This gel is then cooled, freezeed, vacuum dried, and converted into transparent glass by heating in an atmosphere contg. a halogen-contg. dehydrating agent. The silicon compound used includes alcoholates such as  $\text{Si}(\text{OCH}_3)_4$  and  $\text{Si}(\text{OC}_2\text{H}_5)_4$  represented by formula  $\text{Si}(\text{OR})_4$  (where R is alkyl) and  $\text{SiCl}_4$ . The dehydrating agent is added to remove OH groups in porous gel or quartz glass, and  $\text{SOCl}_2$ ,  $\text{SO}_2\text{Cl}_2$ ,  $\text{S}_2\text{Cl}_2$ ,  $\text{CCl}_4$  or the like is used as the agent.

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